

Report on EMS Annual Meeting 2022

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Alice Portal^{1,2}

¹*University of Milano-Bicocca, Department of Earth and Environmental Sciences, Milan, Italy*

²*Laboratoire de Météorologie Dynamique/IPSL, École Normale Supérieure, PSL Research University, Sorbonne Université, École Polytechnique, IP Paris, CNRS, Paris, France*

EMS 2022

EMS Annual Meeting is a yearly appointment happening at the beginning of September for communities involved in climate and meteorology from many point of views. This year it was held in hybrid mode, with on-site participants meeting in Bonn, Campus Poppelsdorf. The additional focus of the conference was “Connecting communities to deliver seamless weather and climates science and services”. The title puts emphasises on the heterogeneity of ongoing research and institutions involved in weather and climate, and particularly on the importance of the interaction among people and sectors for the advance of science and services, due to their high inter-dependency.

In this report my intention is to evidence what I found important, new and inspiring in EMS 2022. Since my experience of conferences on weather and climate is relatively shallow, I do not exclude that many of the ideas that are new to me may be already well established within the community and not at all exciting for others.

During the Strategic Lectures centered on the focus of “Connecting communities to deliver seamless weather and climates science and services” some of the speakers introduced the idea that the climate-weather community is fundamentally well connected compared to other scientific fields. Although the opinion is debatable, it is true that our scientific domain is extremely varied – just to mention some already wide topics : the theory and modelling of the atmosphere (or climate), statistics and data-analysis techniques used for the understanding of processes and of predictability. Moreover, since weather and climate are part of the life of people, attention to the impacts on society and communication to the public are very relevant. Not to forget, and also noticeable in the EMS poster sessions, is the intersection bet-

ween the objectives of the private and public sectors.

Among the Strategic Lectures, the intervention by Isla Finney (from the company Lake Street) was particularly meaningful to me. She talked of the importance of the “user perspective” in applying scientific knowledge and expertise to concrete problems. «In front of a farmer planning next Autumn’s crops which datasets should we use to provide forecasts ? Should our approach be deterministic or probabilistic ?». In her view the process by which we obtain information should depend on the user and his particular needs. In the case of the farmer, a large-scale firm would find a probabilistic forecast more useful than a deterministic one. The opposite for a farmer working on a small extension of land. In this context I was impressed by the work presented by Kathrin Wehrli regarding Climate Scenarios for Switzerland (CH2018). In the document they present four imaginary characters leading different lifestyles (a grandmother, a sledger, a vegetable grower and a home owner) and describe with attractive visualisation the impacts of the projected warm spells on their activities and life quality. I found this approach exemplary

in terms of Climate-Change communication. As Celeste Saulo said during her intervention, it is not by publishing articles in scientific papers that research on climate will have an impact on the public !

Making science useful for day-to-day problems is a fascinating concept, and is particularly applicable to the energy sector. During the conference I met a number of talks and posters investigating the link between weather regimes and renewable energy (photovoltaic and wind) or studies on the potentials and deficiencies associated with renewable energy sources. Another topic of research which may have a high impact on society and lifestyle is the study of the micro-climate within towns and cities, and of possible solutions to the “heat-island effect” problem.

While the applications mentioned above are new to me and often pleasantly original, my personal interest is more related to atmospheric dynamics, which in the conference was mainly discussed in the session *UP1.1 : Atmospheric dynamics, predictability, and extremes*. The solicited talk by Shira Raveh-Rubin on the topic of *Dynamics of dry intrusion air streams and their relevance for extreme weather* was highly inspiring. She showed Lagrangian-trajectory analy-

ses investigating the spatial origin of dry intrusions entering extratropical cyclones’ cold fronts, and integrated this with studies on the effect of the intrusions on the stability of the boundary layer - directly involved with the weather at the surface. On similar grounds, i.e. Lagrangian trajectory analyses, was the work presented by Lukas Papritz, relating localised melting of Arctic sea ice with weather regimes characterised by a complex interaction between circulation patterns near the surface and in the mid troposphere. From these two presentations and others (not cited here) I learned that patterns of atmospheric circulation in the mid-troposphere are not sufficient to determine surface impacts, which depend on the interaction of the troposphere with the the boundary layer.

To conclude, my experience in EMS 2022 has been very positive : I have learned science, appreciated the complexity and charm of weather and climate studies to the service of concrete human needs, and met new and old friends in a nice environment. The only con was the Deutsche-Bahn service. Still, EMS is not guilty for this.